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HIV/AIDS

Epi Updates

Canada

HIV/AIDS
Epi Updates

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HIV/AIDS *Epi Update*

Bureau of HIV/AIDS, STD and TB Update Series
Laboratory Centre for Disease Control

May 1998

AIDS and HIV in Canada (1998)

AIDS in Canada

Since the beginning of the epidemic to December 31, 1997, there have been 15,528 AIDS cases reported in Canada. Adjusting the number of case reports for delays in reporting AIDS to LCDC, the total number of AIDS cases in Canada is estimated to be approximately 20,000.

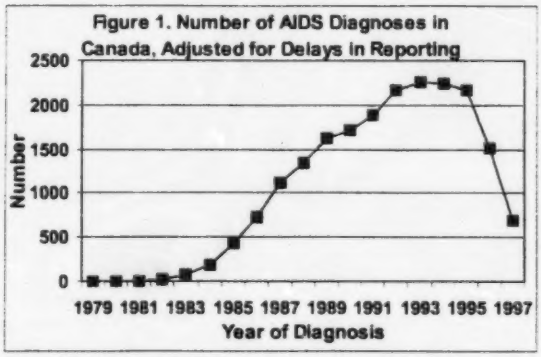
AIDS Cases and AIDS Deaths Decline

The overall trend in the reported number of AIDS cases continues the decline first seen in 1994 (Figure 1). In comparison to 1996, there was a 54.1% decrease in the number of reported AIDS cases in 1997.

The decrease in the number of new AIDS cases reports may be attributed to a number of factors, such as improving antiretroviral treatments and drug prophylaxis that delay the onset of the clinical presentations defining AIDS, and also to decreased reporting by physicians and health care workers.

AIDS in females: increasing proportion of AIDS cases

Females now account for 7.2% of the cumulative total of reported AIDS diagnoses; however, the proportion of total annual diagnoses that is female has been on the rise for the past seven years (Figure 2). In 1997, female cases reached a level not previously seen since monitoring of the epidemic began, accounting for 14.1% of annual AIDS diagnoses.



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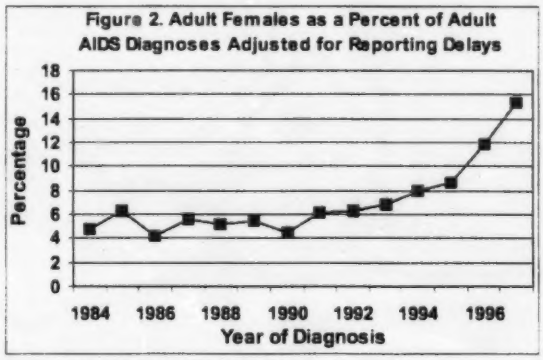

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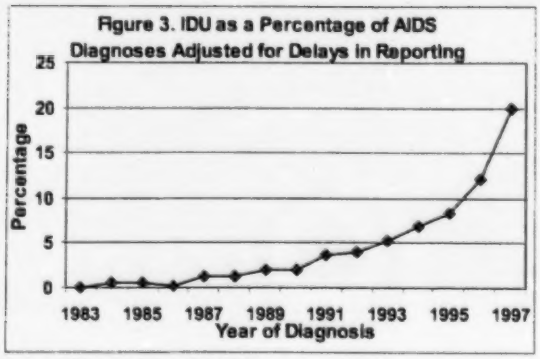
AIDS in injection drug users: proportion doubles in past two years

IDU exposure category has increasingly been an important route of transmission of HIV in Canada. Figure 3 illustrates that 19.9% of adult cases diag-



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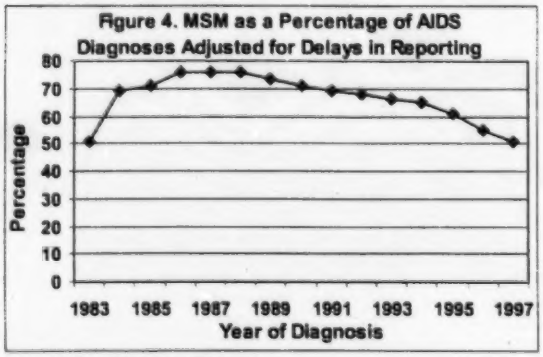
nosed in 1997 have been attributed to IDU transmission.

Injection drug use is a much more common method of transmission in females than in males, accounting for 18.3% of all AIDS diagnoses in adult women, compared to 3.7% in adult men. An additional 4.8% of adult male AIDS diagnoses are attributed to the combined exposure category of men who have sex with men/injecting drug use (MSM/IDU).

AIDS in MSM: decreasing proportion of reported AIDS cases

As illustrated in Figure 4, MSM account for slightly over one-half of new AIDS reports. MSM have accounted for a declining proportion of AIDS diagnoses since 1989 reflecting the movement of the HIV epidemic into other at-risk populations.



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HIV testing data in Canada: emphasizing changes in the HIV epidemic

Since reported AIDS incidence is no longer a reliable indicator of the burden of HIV disease, HIV surveillance is becoming increasingly important. One aspect of HIV surveillance is the surveillance of positive HIV test reports based on confidential non-nominal laboratory test data contributed by provinces and territories.

Laboratory data do not represent the number of individuals infected with HIV, nor information on the population infected with HIV but remaining untested; it only provides information on the tested population. Consequently, trends identified in HIV test data may only reflect changes in testing patterns, such as who comes forward for testing, improving duplicate removal processes or reporting delays, and must be interpreted with caution.

Anonymous HIV testing data are also a component of testing programs in some provinces. Positive HIV test reports from anonymous testing sites are not included in analyses of test report data because of the implications of repeat testing and duplicate removal. Thus, the figures presented represent the minimum number of positive HIV tests after removing duplicates to the degree possible. This report summarizes numbers of HIV-positive reports based on confidential, non-nominal laboratory data.

Up to December 1997, it is estimated that 41,681 individuals in Canada have tested positive for HIV. In 1995 there were an estimated 3,070 positive HIV test reports, while there were a further 2,838 in 1996. Table 1 summarizes aspects of the 2,598 positive HIV test reports in 1997.

Table 1. Positive HIV test reports as reported by provinces and territories by reporting periods[1]

As a Percentage of all Positive HIV Test Reports				
Year	Female	Injection Drug Use	Men who have Sex with Men	Hetero-sexual
1985-1994	9.8%	8.4%	74.6%	7.4%
1995	19.6%	26.9%	44.0%	16.2%
1996	21.7%	30.7%	39.9%	18.4%
1997	21.8%	33.2%	37.6%	21.8%

Note: Rows do not add up to 100% since categories are not mutually exclusive. Percentages are based on total number minus those reports for which exposure category was unknown. The information on exposure categories of individuals who have tested positive for HIV in Quebec is not available.

HIV infections attributable to specific exposure categories are changing as the HIV epidemic evolves. In the 1985-1994 testing period, the exposure category men who have sex with men (MSM) accounted for an estimated 74.6% of positive HIV tests. In 1997, this exposure category accounted for approximately 37.6% of HIV positive tests reported. In the 1985-1994 testing period, IDU exposure accounted for only 8.4% of HIV positive tests. In 1997, IDU accounted for 33.2% of HIV positive reports. Meanwhile, heterosexual sexual contact accounted for 7.4% of HIV positive test reports in the 1985-1994 testing period, compared to 21.8% of HIV positive test reports in 1997. For details of trends in HIV positive test results, please see '*HIV and AIDS in Canada, Surveillance Report to December 31, 1997*'[1].

Conclusion

Although AIDS case reports are declining primarily due to treatments, the HIV epidemics in Canada continue and are affecting new populations. Better data are required to detect these emerging HIV trends.

Reference

1. *HIV and AIDS in Canada. Surveillance report to December 31, 1997.* Division of HIV/AIDS Surveillance. Bureau of HIV/AIDS and STD, Laboratory Centre for Disease Control (LCDC), Health Canada, March 1998.

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May 1998

HIV Testing Among Canadians: An Estimated 11,000-17,000 Current HIV Infections May Not Be Diagnosed

Introduction

This Epi Update summarizes available data on the characteristics of persons tested for HIV in Canada and presents our estimate of 11,000-17,000 Canadians who were HIV-infected but unaware of their infection at the end of 1996.

Since HIV testing programs became available in 1985, Canadians have been gaining knowledge of their HIV status. Access to HIV testing services has been through either coded or confidential testing through a doctor, or through anonymous testing sites where counselling is usually provided. Knowledge of whether or not one is HIV positive can be useful for several reasons. If the person is found to be HIV infected, consideration can be given to starting antiretroviral therapies. In the case of pregnant women, treatment can reduce the chances that the infant will be infected (from about 25% to 8%)[1]. As well, counselling received at the time of HIV testing can provide information on how to reduce the risk of HIV infection to the individual if HIV negative, and to others if the individual is HIV positive.

From 1985, when testing was instituted, to December 31, 1996, an estimated 39,000 people in Canada[2] had tested positive for HIV. These HIV-positive test data are based on non-nominal, confidential HIV testing information provided by all provinces and territories in Canada, with duplicates tests for the same individual removed to the degree possible. The removal of duplicates is necessary to accurately reflect the number of annual new HIV diagnoses. Duplicate removal rates vary by year, province and type of data (nominal, non-nominal or anonymous), so comparison between these categories is problematic. It is important to note, however, that in most provinces the ability to remove duplicates has improved significantly since 1995. Additionally, data on HIV-positive tests only represent the tested population and do not represent all persons who have been infected with HIV. Further details on the analysis of national HIV-positive test data are given in reference number 2 and in the Epi Update entitled "AIDS and HIV in Canada (1998)".

Characteristics of persons tested for HIV

A Canada-wide survey conducted in January 1997 found that 18.6% of men aged 15 years and older and 16.2% of women aged 15 years and older had been tested for HIV (excluding tests for blood donation and insurance purposes)[3]. Of those tested, 39% had been tested in the year prior to the survey, 57% in the prior two years, and 43% had their most recent test more than two years prior to the survey. A 1996 survey[4] found that, taking into account ancillary testing such as donating blood or being tested for life-insurance purposes, 41% of men and

31% of women in Canada had ever been tested for HIV.

National surveys of the general population suggest that those who report risk factors are more likely to be tested:

- Among those who had opposite-sex partners, those with two or more partners in the last year were more likely to be tested than those with one partner (50.5% vs 17.4%). Of those who reported having had an STD in the past five years, 58% had been tested compared to 17.4% of those who did not report an STD[3].

- For men, testing was higher among those who had sexual intercourse with another man (71%), used injection drugs (62%), received blood or clotting factor between 1978 and 1985 (27%), and had a partner with a risk factor (IDU, having received blood or clotting factor between 1978 and 1985, from a country endemic for HIV) (30%)[4]. For women, testing was higher among those who had received blood or clotting factor between 1978 and 1985 (32%), who had a high-risk partner (38%) and who had sexual intercourse with a man since 1978 (17%)[4].

- Testing is highest among those 25 to 34 years of age[3,4]. Even after taking into account all other risk factors, those ≥ 45 years of age are still less likely to be tested than are those < 45 years of age[3,4].

- Although those reporting risk factors such as IDU, multiple partners, or MSM are more likely to be tested, a substantial proportion of those reporting risk factors have not been tested recently, or have not been tested at all. For example, among those who report having had more than one partner in the last year and not using condoms consistently, 53% of men and 38% of women have never been tested.

Estimate of the number of HIV-infected persons who are unaware of their infection

As noted in the Introduction, a total of approximately 39,000 Canadians had tested positive for HIV up to the end of 1996. An estimated 13,000-15,000 individuals of this total have died of AIDS to the end of 1996 (adjusted for reporting delay and under-reporting). Therefore, approximately 24,000-26,000 individuals of this 39,000 total were still alive at the end of 1996.

The Bureau of HIV/AIDS, STD and TB has previously estimated that at the end of 1996, approximately 36,000-42,000 Canadians were living with HIV infection (including those living with AIDS)[5]. This number includes both those who are aware of their infection (by having tested positive for HIV) and those who are not. The difference between the number alive and HIV-infected (36,000-42,000) and the number alive and tested positive for HIV (24,000-26,000) represents an estimate of the number of persons alive and unaware of their infection (not tested positive for HIV). This difference is approximately 11,000-17,000 persons or about 30%-40% of the estimated 36,000-42,000 Canadians living with HIV infection at the end of 1996.

Therefore, at the end of 1996, there was an estimated 11,000-17,000 HIV-infected persons living in Canada who were not aware of their HIV infection.

Comment

Canadians with risk factors for HIV infection are more likely to have been tested for HIV than those without such risk factors, but there still remains a significant proportion of persons with risk factors who have never been tested for HIV. More needs to be learned about those who are at risk for HIV yet have not been tested. Furthermore, at the end of 1996, there was an estimated 11,000-17,000 HIV-infected Canadians who were unaware of their infection. Given these data, and the fact that new treatments are available for HIV infection, it may be time to review HIV testing in Canada.

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May 1998

HIV and AIDS Among Men Who Have Sex with Men

Introduction

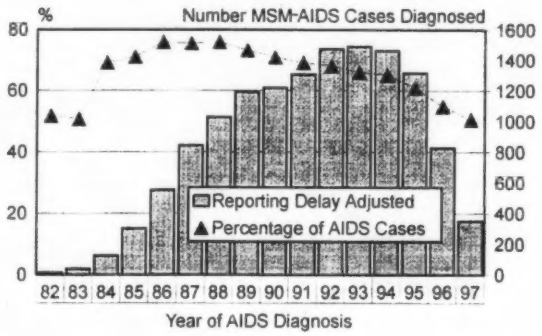
The HIV/AIDS epidemic in Canada no longer continues to affect men who have sex with men (MSM) to the same extent that it did in the early-to-mid 1980s. However, this group is still a significant part of the epidemic. This report updates the current information on the status of HIV and AIDS among MSM in Canada.

AIDS data[1]

- As of December 31, 1997, a cumulative total of 15,528 AIDS cases had been reported to the Bureau of HIV/AIDS and STD. Of these, 11,175 (71.9%) were attributed to MSM and an additional 681 (4.4%) were attributed to the combined category of MSM and injection drug use (IDU). Adjusting for reporting delay, the number of AIDS cases among MSM was estimated at 13,046 by the end of 1997.

- Figure 1 shows the trends in delay-adjusted AIDS cases attributed to MSM and in the proportion of reported AIDS cases attributed to MSM. The annual number of MSM-AIDS cases levelled off from 1992 to 1994 and has decreased since then, likely due to availability of new, more effective treatments and perhaps also due to decreased reporting completeness (see Epi Update entitled "AIDS and HIV in Canada 1998"). The proportion of cases attributed to MSM has decreased since 1987-88[2]. However, the proportion of cases attributed to the category MSM/IDU has steadily increased from 2.7% of cases in 1985 to 5.4% in 1997.

Figure 1. Annual MSM-AIDS reports



HIV testing data

- While AIDS data provide information on HIV infection approximately 10 years in the past, HIV testing data can help provide a picture of more recent infection.

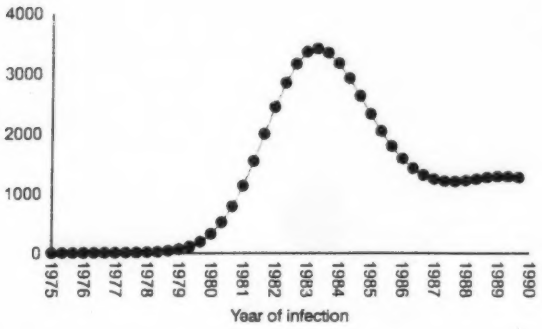
- Data from provincial testing programs indicate that MSM is a decreasing factor among new HIV-positive test reports. For example, at the national level, 37.6% of new positive HIV test reports in 1997 indicated MSM as a risk factor compared with 39.9% in 1996, 44.0% in 1995, and 74.6% prior to 1995. Similarly in B.C. and Alberta, MSM represented 20.7% and 26.4% respectively of positive test reports in 1997 compared with 22.3%, 39.9% in 1996, 26.6%,

44.7% in 1995, and 55.2%, 63.7% prior to 1995[3].

- Data from Ontario indicate that new HIV infections among MSM who are repeatedly tested for HIV have declined from 3 per 100 person-years in 1992 to 2 per 100 person-years in 1994 and appear to have stabilized at that level between 1994 and 1996[4].

- Although HIV testing data only reflect trends in newly diagnosed infections, they nonetheless suggest decreasing infections among MSM. This is supported by the reconstruction of historical HIV infections in Canada up to 1989 in which the annual number of new infections in MSM is seen to have peaked in 1983-84 (Fig. 2)[5].

Figure 2. Annual MSM-HIV infections



HIV prevalence and incidence data

- In the beginning of the HIV epidemic in early 1982-84, HIV prevalence among MSM was estimated at 36% in Vancouver[6] and 25% in Montreal[7].

- In the early 1990s, a national study among MSM reported that 65% had been tested for HIV antibody and self-report prevalence rates were 18.2% nationally, 23.0% in Vancouver, 27.2% in Toronto, 20.1% in Montreal, and between 10.2% and 20.5% in other regions of Canada[8].

- Of studies done more recently (1994-97), prevalence rates among MSM in a variety of settings were 11% in Alberta STD patients[9], 7% in a Winnipeg survey[10], 4% in Ontario MSM who underwent voluntary HIV testing[11], and 4%-10% in Montreal (street youth and inmates)[12,13]. Prevalence rates are higher for MSM who are also injection drug users; for example, 16%-18% among MSM/IDU attending needle exchange programs in Quebec[14,15].

- Cohort studies during the period 1995-97 suggest an incidence of 1 per 100 person-years among MSM of all ages in Montreal[16] and 2 per 100 person-years among MSM less than 30 years old in Vancouver[17].

Risk behaviour data

- In a Montreal study of MSM aged 16 years and older (median age of 31 years) in 1997, 14%-15% of participants reported engaging in unprotected anal intercourse with a casual partner in the 6 months prior to being interviewed[16]. Somewhat higher rates were observed in a Vancouver study of MSM aged 18-30 in which 20.6% reported having unprotected anal intercourse with a casual partner in the year prior to baseline[17].

- In an age-adjusted comparison with a 1982-84 Vancouver cohort of MSM, a Vancouver cohort established in 1996-97 showed an increase in age of first intercourse with a male (18 vs 17 years) and a decrease in the proportion reporting more than five sexual partners in the past year (56% vs 76%). In a comparison which did not adjust for age, 45% of those in the 1982-84 cohort (mean age 30 years) and 38% of those in the more recent cohort (mean age 25 years) reported having unprotected receptive anal intercourse with a regular partner in the past year. Also, 8% of those in the older cohort and 17% of those in the younger cohort reported having unprotected receptive anal intercourse with a casual partner in the past year[18].

Comment

The incidence of HIV among MSM has been decreasing since the mid-1980s, although transmission continues to occur. A significant proportion

of MSM continue to have unprotected anal sex with both regular and casual partners. Better data are needed to continue monitoring the epidemic in this important group and to target and evaluate prevention programs to further reduce transmission in MSM.

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HIV/AIDS Among Injection Drug Users in Canada

Introduction

Since the early 1980s when the HIV epidemic was concentrated in men who have sex with men (MSM), the Canadian epidemic has continued to evolve. In 1996, approximately half of the estimated 3,000-5,000 HIV infections[1] that occurred in Canada were among injection drug users (IDUs), illustrating the significance of this group in the current Canadian epidemic. This report updates current information on the status of the HIV/AIDS epidemic among IDUs in Canada.

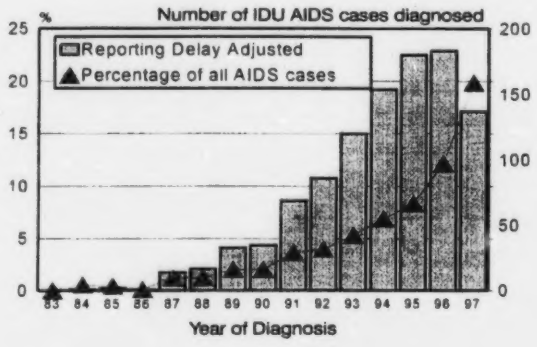
Injection drug use: an increasing risk factor among AIDS cases[2]

- As of December 31, 1997, 15,528 AIDS cases had been reported to the Bureau of HIV/AIDS, STD and TB. Of these, 725 (4.7%) were attributed to injection drug use and an additional 681 (4.4%) were attributed to the combined category of injection drug use and MSM.

- Injection drug use is a more common risk factor for women, with 19.2% of adult female AIDS cases attributed to injection drug use versus 3.9% for adult male cases. However, when the analysis is restricted to non-MSM cases, the percentage of male cases attributed to IDU is 27.1%.

- Figure 1 shows that the number of AIDS cases attributed to IDU steadily increased until 1996 and then decreased slightly in 1997, likely due to the availability of new, more effective treatments and perhaps also due to decreased reporting completeness (see Epi Update entitled "AIDS and HIV in Canada 1998").

Figure 1. Annual IDU-AIDS reports[3]



- The proportion of AIDS cases attributed to injection drug use has also increased over time (Fig. 1). For adult male cases, this proportion has increased from 0.7% during the period before 1988, to 2.4% during 1988-1992, and to 6.5% during 1993-1997. For women, the increase has been even more dramatic: from 4.1% to 14.7% and finally to 24.9% for the respective time periods.

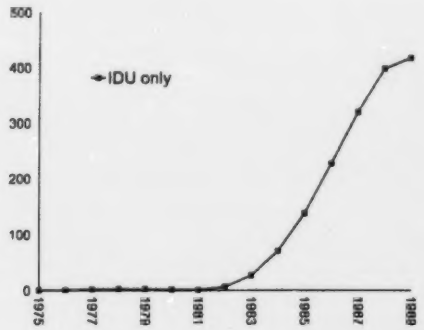
Injection drug use is also an increasing risk factor in HIV-positive test reports

- Data from provincial HIV testing programs in Ontario and B.C. indicate that injection drug use is an increasing risk factor among new HIV-

positive test reports. For example, in Ontario, 5.7% of new positive test reports in 1996-97 were among IDUs compared with 5.4% in 1995 and 2.8% prior to 1995. The situation is even more marked in B.C., where injection drug use accounted for 43% of new positive tests in 1996-97 compared with 38% in 1995 and 8.2% prior to 1995[4].

- Although such HIV testing data only partly reflect trends in new infections, they nonetheless suggest increasing infections among IDUs. This is supported by the reconstruction of historical HIV infections among IDUs in Canada up to 1989 (see Fig 2. below)[3].

Figure 2. Estimated Annual HIV Infections



HIV prevalence and incidence data suggest urgent problem among injection drug users

- HIV prevalence among injection drug users in Montreal has increased from about 5% prior to 1988 to 19.5% in 1997[5].

- Prevalence among IDUs in Vancouver has increased from about 4% in 1992/93[6] to 23% in 1996/97[7], and prevalence among Toronto IDUs has increased from 4.5% in 1991/92 to 9.5% in 1997[8].

- A 1992/93 study of IDUs in Ottawa found a prevalence among needle exchange program (NEP) attendees of 10.3%[9]; a 1996/97 study of NEP attendees found prevalence had increased to 21.1%[10].

- Recent data from NEP attendees in smaller cities in Quebec show that HIV prevalence among IDUs has reached worrisome levels even outside major urban areas (Quebec City 9.0% and semi-urban areas of Quebec 5.7%[10]).

- HIV incidence among Montreal IDUs was estimated to be 4-9 new infections per 100 users per year during the early 1990s[11,12]. A small study in Vancouver in 1992/93 estimated incidence at about 5 per 100 person-years[6], but preliminary data from a cohort study in 1996/97 found a rate of 18.2% during 1996/12-1997/05 and 4.8% during 1997/06-1998/02. The lower incidence in the second time period could be due to a saturation effect (i.e. highest risk IDUs already infected)[7]. Preliminary data from repeat NEP attendees in the province of Quebec and Ottawa found an incidence of 6.9 per 100 person-years[10].

Sub-populations within IDU community require special attention

- Injection drug users are over-represented in prisons. Estimates of HIV prevalence among prisoners vary from 1%-4% in men and from 1%-10% in women, and in both groups infection is strongly associated with a history of injection drug use[13-17].

- Aboriginal peoples are over-represented in inner city injection drug use communities and among clientele using inner-city services such as needle exchange programs and counselling/referral sites.

Comment

The HIV epidemic among IDUs in Canada continues to be a very serious problem. This problem is best documented in larger cities, but it is now being seen outside major urban areas as well. Additional epidemiologic data are needed to better define the extent of the problem and to guide the development and refinement of effective prevention policies and programs. These data are especially needed for areas outside major urban areas and for Aboriginal populations. Given the geographic mobility of IDUs and their social and sexual interac-

tion with non-users, the dual problem of injection drug use and HIV infection is one that ultimately affects all of Canadian society.

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HIV/AIDS Epidemiology Among Aboriginal People in Canada

Introduction

In recent years, the HIV/AIDS epidemic among Aboriginal people in Canada has been evolving but the lack of solid information limits our understanding. Despite this, it is clear that some Aboriginal communities are at increased risk for HIV infection because of their low socioeconomic status and high rates of sexually transmitted diseases. This report updates current information on the status of the HIV/AIDS epidemic among Canada's Aboriginal people.

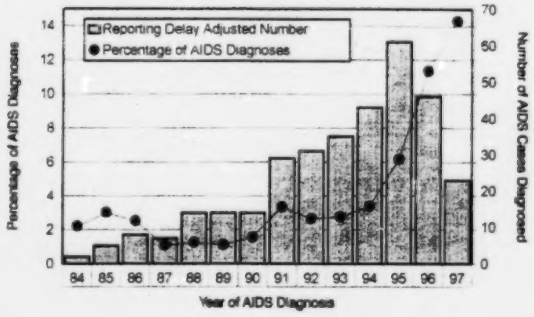
Pattern of AIDS is different among Aboriginal people[1]

Increasing trend over time[1]:

- As of December 31, 1997, a cumulative total of 15,528 AIDS cases were reported to the Bureau of HIV/AIDS, STD and TB and of these, 255 were reported as Aboriginal. Adjusting for reporting delay, the number of Aboriginal AIDS cases was estimated at 332 by the end of 1997 or 33.2/100,000 Aboriginal people.

- Fig 1 shows the trends in delay-adjusted AIDS cases attributed to Aboriginal persons. The annual number of Aboriginal AIDS cases has risen dramatically during the last five years. The graph also shows an increase over time of the proportion of cases attributed to Aboriginal persons, from 2% before 1989 to more than 10% in 1996/97.

Figure 1. Annual Aboriginal AIDS reports



- Note that Aboriginal AIDS cases are underreported because of delays in reporting and variation in the completeness of reporting ethnic status between provinces.

Injection drug use (IDU), a major risk factor[1]:

- Among the 213 male Aboriginal AIDS cases, exposure categories were as follows: men who have sex with men (MSM) 59.2%, intravenous drug users (IDUs) 18.8%, MSM/IDU 13.6%, heterosexual contact 4.2%, receiving blood/clotting factors 0.9%, and perinatal transmission 0.9%.

- Among the 42 female Aboriginal AIDS cases, exposure categories were as follows: IDUs 47.6%, heterosexual contact 35.7%, receiving blood/clotting factors 9.5%, and perinatal transmission 4.8%.

- Adult Aboriginal AIDS cases are more likely than adult non-Aboriginal AIDS cases to have their exposure category attributed to injection drug use (19.0% vs 3.2% for men, 50.0% vs 17.4% for women).

Aboriginal AIDS cases are younger and more likely to be women compared with non-Aboriginal AIDS cases[1]:

- Aboriginal AIDS cases are younger than non-Aboriginal AIDS cases (29.8% vs 18.6% were diagnosed at less than 30 years of age).

- The proportion of women among adult Aboriginal AIDS cases is higher than among adult non-Aboriginal AIDS cases (15.9% vs 7.0%).

HIV data needed to assess more recent trends in epidemic

- AIDS data reflect patterns of HIV infection approximately 7-10 years in the past, so data on more recent HIV infections are needed to better reflect the current epidemic.

- Of the few studies done among Aboriginal people or in sub-populations with Aboriginal identifiers, prevalence rates in a variety of settings were 0.4%-2.5% in Vancouver (Native alcohol and drug treatment centres, inmates, and needle exchange centres)[2-4], 2.1% in Alberta STD clinics[5], and 7.9% in Ontario reserves (self-report by those who had been tested for HIV)[6]. Overall, these prevalence rates are similar to those of corresponding non-Aboriginal groups, but the relatively small amount of data cannot rule out the possibility that rates are in fact higher among Aboriginal people.

- Recent data (1993-97) from B.C., Alberta, and Saskatchewan show that Aboriginal people account for 15%, 26%, and 43% of newly diagnosed HIV-positive cases respectively, and that IDU and heterosexual behaviours were the most significant risk factors. For example, the proportion of new HIV-positive tests among Aboriginal persons attributed to IDU and heterosexual groups were 73% and 12.8% in B.C., and 60% and 13% in Alberta, respectively[7,8]. It has also been observed that in Saskatchewan, 28% (481/1,742) of individuals who tested at anonymous HIV testing programs in 1996 were Aboriginal[10].

Aboriginal people are over-represented in groups at high risk for HIV infection

- At a B.C. clinic which cares for the majority of HIV-infected pregnant women in the province, 41% (21/51) of the women under care were Aboriginal[11].

- A recent cohort study among IDUs in Vancouver found that there were more Aboriginal people in the HIV-positive group than in HIV-negative group (34% vs 25%) at baseline. Of the new HIV infections in this cohort during 1996-97, 29% (7/24) were among Aboriginal persons[12].

- In some cities, 11-75% of clientele using inner-city services such as needle exchange and counselling/referral sites are Aboriginal[13-17].

- Recent studies among men who have sex with men found 8% of the studied population in Vancouver and 17% in Winnipeg were Aboriginal[18,19].

- Fourteen percent of federal inmates in Canada are Aboriginal, with rates up to 40% in provincial or federal jails in some provinces[3,20-22].

- Sexually transmitted disease rates in some regions predominantly populated by Aboriginal people (Yukon and North West Territories) are 5-10 times the national average[23].

Comments

- Interpretation of AIDS data among Aboriginal people is difficult because ethnic information is lacking for many reported AIDS cases. This may lead to bias if the proportion of Aboriginal people in the unrecorded group is different to that in the recorded group.

- With respect to HIV data, few studies have been done specifically in Aboriginal populations or

in mixed populations where Aboriginal status is identified. Therefore, generalizability of these results to the general Aboriginal population is limited. In addition, HIV testing and clinical data are available only for those who came forward for testing and/or treatment; thus they do not represent the total number of Aboriginal people infected with HIV. Furthermore, relatively scant information collected by anonymous HIV testing programs makes it difficult to rule out duplicates and to further interpret the characteristics of Aboriginal HIV-positive tests reports.

- Despite these limitations, available evidence suggests that Aboriginal people are infected earlier than non-Aboriginal people, that injection drug use is an important mode of transmission, and that the HIV epidemic among Aboriginal people shows no sign of abating. Furthermore, the high degree of movement of Aboriginal people between inner cities and rural areas may bring the risk of HIV to even the most remote Aboriginal community.

- Better data on HIV/AIDS epidemiology and HIV testing among Aboriginal people in Canada are needed to guide prevention and control strategies.

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HIV and AIDS Among Women in Canada

Introduction

The HIV/AIDS epidemic in Canada was initially concentrated among men who have sex with men (MSM). Since the mid 1980s, HIV/AIDS has increasingly affected other groups such as injection drug users (IDUs), male heterosexuals and women. The HIV epidemic among women is of particular concern because of the potential for transmission to their infants. This report updates the status of HIV and AIDS among women in Canada.

AIDS reports are increasing among women[1]

Of the 15,528 AIDS cases reported in Canada up to December 31, 1997, 1,113 (7.2%) were among women: 1,033 in adults ≥ 15 years; and 80 among children < 15 years old. Adjusting the numbers of case reports for under-reporting and reporting delay brings the total number of AIDS cases among adult women to 1,327 by December 31, 1997.

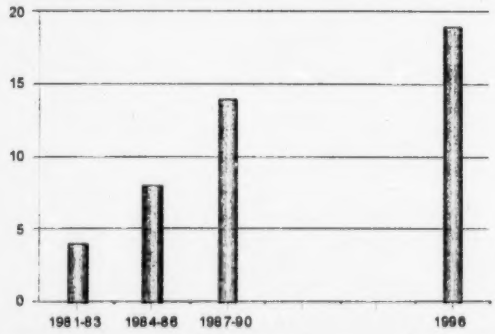
The total number of AIDS cases among adult women (delay adjusted) has increased from an average of less than 10 cases per year in the early 1980s to an average of 143 cases per year in 1995-97. In addition, the proportion of AIDS cases in adult women has increased over time, particularly recently, from 5.2% of all AIDS cases before 1990, to 6.7% during 1990-1995, and 13.6% in 1996-97. The proportion of female AIDS cases attributed to injection drug use has increased dramatically from 6.4% before 1990, to 20% during 1990-95, and 23% in 1996-97.

As of December 31, 1997, 133/170 (78%) of pediatric AIDS cases (0-14 years of age) had been attributed to perinatal transmission.

HIV data also suggest increasing infection among women

While AIDS data provide information on HIV infections occurring about 10 years in the past, HIV data provide a picture of more recent infections. Using data from HIV serodiagnostic databases, epidemiologic studies, and behavioural surveys, the Bureau of HIV/AIDS & STD estimates that by the end of 1996, 36,000-42,000 Canadians were living with HIV, including 4,000-5,000 women. The estimated proportion of women among new HIV infections has increased steadily over time[2] (Figure 1).

Figure 1. Estimated proportion of women among new infections



HIV testing programs provide valuable information about women[3]

Data from provincial HIV testing programs in B.C. and Ontario indicate that among individuals testing newly positive for HIV, an increasing percentage are women. For example, in Ontario, about 8% of new positive test reports prior to 1995 were among women, and this increased to 16% in 1995, 17% in 1996, and 20% in 1997. In B.C., women represented about 8% of all positive reports prior to 1995, 22% in 1995, 23.4% in 1996 and 19% in 1997. Although such data only partly reflect trends in new infections, they nonetheless suggest increasing infections among women in these two provinces.

Nationally, before 1995, women represented 9% of all positive HIV test reports that included gender identification. During 1995, this proportion doubled to 19% of all positive HIV test reports. Injection drug use as a risk factor accounted for 10.5% of new positive reports among women before 1995, and 20.5% in 1995.

HIV among pregnant women and women of childbearing age: not only in large metropolitan centres

HIV prevalence studies among pregnant women indicate an average rate for Canada of about 3-4/10,000. Provincial rates have ranged from 1.9/10,000 (Ontario 1991-92[4]) to 8.7/10,000 (Newfoundland 1991-93[5]) and large metropolitan areas have higher rates (4.7 for Vancouver versus 3.4 for the rest of B.C. in 1994[6] and 15.3 for Montreal versus 5.2 for the province of Quebec in 1990[7]). However, even provinces without large metropolitan areas have significant rates (for example, 4.1/10,000 in New Brunswick for 1994-96[8]) and data from Manitoba suggest an increasing trend of HIV infection among women of childbearing age (from 0.7/10,000 in 1991 to 3.2/10, 000 in 1994-1995[9]).

HIV/AIDS mortality rising among women[10]

In Canada, age-specific death rates for women aged 25-44 with HIV/AIDS have risen from 0.4/100,000 in 1987 to 1.9/100 000 in 1994. HIV/AIDS mortality among women in middle age appears to be approaching the levels associated with other leading causes of death such as heart disease (2.37/100,000 in 1994) and lung cancer (3.18/100,000 in 1994).

Comments

Canadian women are increasingly becoming infected with HIV, especially those who use injection drugs and whose sexual partners are at increased risk for HIV. Pregnant women are at risk for transmitting HIV to their unborn children. Detecting HIV infection before or during early pregnancy can reduce the likelihood of vertical transmission of HIV (from mother to infant) by up to two-thirds if the woman and her child are offered timely antiretroviral treatment.

All women, and especially women of childbearing age, should have access to HIV testing, counselling and care. Better data on the trends, risk factors and geographic shifts of HIV among Canadian women are needed to help target prevention and care programs.

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Perinatally Acquired HIV infection

Introduction

Perinatal (or vertical) transmission of HIV is the transmission of HIV from an HIV-infected pregnant women to her newborn child. Transmission can occur during gestation (in utero), during delivery, when the fetus makes contact with maternal blood and mucosa in the birth canal, or after delivery, through breastmilk. Therefore, women of childbearing age (15-44) are of particular importance since they may transmit HIV infection to their newborn children.

In this report the status of perinatal HIV transmission in Canada and the status of HIV testing recommendations for pregnant women is discussed.

AIDS case reports

A total of 15,528 AIDS cases had been reported in Canada up to December 31, 1997, including 1,113 cases (7.2%) among women. Of these, 73% (811/1,113) were among women aged 15-44, women of childbearing age.

In Canada to December 31, 1997, 78% (133/170) of the reported pediatric AIDS cases (among children 0-14 years of age) were attributed to perinatal transmission.

HIV among pregnant women and women of childbearing age

HIV prevalence studies among pregnant women indicate an average provincial rate for Canada of about 3-4/10,000. The provincial range is from 1.9/10,000 (Ontario 1991-92[1]) to 8.7/10,000 (Newfoundland 1991-93[2]) and large metropolitan areas have higher rates (4.7 for Vancouver versus 3.4 for the rest of B.C. in 1994[3] and 15.3 for Montreal versus 5.2 for the province of Quebec in 1990[4]). However, even provinces without large metropolitan areas have significant rates (for example, 4.1/10,000 in New Brunswick for 1994-96[5]) and data from Manitoba suggest an increasing trend of HIV infection among women of childbearing age (from 0.7/10,000 in 1991 to 3.2/10,000 in 1994-1995[6]).

Prenatal HIV testing is voluntary: summary of provincial testing recommendations

In all Canadian provinces, HIV testing of pregnant women remains the choice of the woman. However, many provinces have guidelines and/or recommendations for physicians to encourage informed decisions in terms of HIV testing during pregnancy.

Newfoundland: In 1997, the Newfoundland and Labrador Advisory Committee on Infectious Diseases recommended that HIV testing be added to the existing prenatal screening program. HIV testing is done as part of the routine prenatal screen, unless the woman declines. The Newfoundland and Labrador Medical Association and the provincial Public Health Laboratory and Department of Health and Community Services have supported this recommendation and have worked to actively notify physicians and patients of this recommendation[7].

Prince Edward Island: While no formal policy exists, the Chief Medical Officer of Health has recommended that all women who present with risk factors for HIV be tested for HIV. This recommendation was made to the Reproductive Care Association, which have passed on the recommendation to the College of Physicians[8].

Nova Scotia: The Reproductive Care Program has recommended that physicians explore the risk factors with their patients and provide them the option to test. The premise of the recommendation is that pre- and post-test counselling together with education will facilitate self-identification[9].

New Brunswick: Testing varies across the province, with no formal policy in place. In all but one region, sexual health centres offer pre-test counselling and confidential testing to pregnant women[10].

Quebec: Since the beginning of 1997, as part of an intervention program on HIV infection and pregnancy, the Ministry of Health and Social Services, in accordance with the College of Physicians, initiated a new program recommending that all pregnant women and women contemplating pregnancy be offered an HIV test[11].

Ontario: The Ontario Advisory Committee on HIV/AIDS has forwarded a recommendation to the Minister of Health stating that voluntary HIV testing, with appropriate counselling, be made available to all pregnant women as part of routine prenatal care and to all women considering becoming pregnant[12]. The Ministry is currently reviewing this recommendation.

Manitoba: The College of Physicians has issued their "Guidelines to Practice" which include approval of a policy, adopted in 1994, that all physicians offer pre-test counselling and HIV testing, with informed consent, to all pregnant women[13].

Saskatchewan: The College of Physicians issued guidelines for physicians to assess a woman's risk and inform her that testing is available[14].

Alberta: Following the work of a multi-stakeholder committee coordinated by the Alberta Medical Association and Alberta Health, an announcement will be made in the summer of 1998 stating that all pregnant women in Alberta should be routinely offered voluntary HIV testing and counselling[15].

British Columbia: In June 1994, the B.C. Ministry of Health recommended that HIV testing be offered as a routine prenatal component, with informed consent and pre- and post-test counselling[16].

Northwest Territories: In 1993, the Northwest Territories Maternal and Perinatal Committee, which has representation from the Department of Health and Social Services and the Northwest Territories Medical Association, recommended that all pregnant women be tested for HIV. This is now considered routine, but the woman may opt-out. The Committee has used multiple avenues to remind professionals and the public of the desirability of universal HIV pregnancy screening[17].

Yukon: In 1994, the Medical Officer of Health, in conjunction with Yukon Communicable Disease Control, "strongly recommended" testing of all pregnant women[18].

Antiretroviral treatment can reduce the likelihood of transmission of HIV from mother to infant during pregnancy

HIV serotesting during pregnancy can provide the opportunity to offer antiretroviral treatment (i.e. AZT) to the mother and infant. A full AZT protocol includes administering AZT to the mother during the second or third trimester, during labour and delivery, and after delivery to the infant for 6 weeks. Administering a full antiretroviral protocol can reduce the likelihood of tranmission of HIV from mother to newborn by about 2/3[19].

In B.C., between 1993 and 1996, the use of antiretroviral therapy (AZT) reduced the likelihood of HIV transmission from mother to infant from 22% transmission among mother-infant pairs who had not received any AZT, to 14% for mother-infant pairs who had received some AZT therapy and 5% among those who received the full AZT protocol[20].

Similarly, a study at Sainte Justine's Hospital in Montreal found a reduction in the HIV vertical transmission rate from 28.3% in untreated women-infant pairs before 1994 to 3.2% in AZT-treated pairs after 1994[21].

Comments

HIV-infected pregnant women are at risk for transmitting HIV to their unborn children. Detecting HIV infection before or during pregnancy can reduce the likelihood of vertical transmission of HIV (from mother to infant) by up to 67% if the woman and her child are offered timely antiretroviral treatment.

There are many factors that may influence tranmission of infection from mother to infant, including maternal viral load[22], mode of delivery[23], timing of delivery after rupture of membranes[24] and length of time breast feeding[25]. In developed countries, such as Canada, where feeding supplements are readily available as safe alternatives to breast milk, an HIV-infected women is recommended not to breast feed her infant. However, in developing countries, the risk of dying from an infectious disease transmitted through contaminated water or other food source may be greater than the risk of acquiring HIV infection, and therefore, in these countries, breast feeding is generally recommended.

All pregnant women, and women considering becoming pregnant, should have access to prenatal care that includes the offer of HIV testing as well as appropriate counselling and care. This provides an important window of opportunity to prevent HIV transmission to newborn children and it is too important to be missed.

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Risk Behaviours Among Injection Drug Users in Canada

Introduction

The proportion and number of AIDS cases and estimated HIV infections attributable to injection drug use in Canada has been increasing steadily since the beginning of the HIV epidemic in the early 1980s (see Epi Update entitled "HIV/AIDS Among Injection Drug Users in Canada", April 1998). In 1996, approximately half of the estimated 3,000-5,000 HIV infections which occurred in Canada were among injection drug users (IDUs)[1], illustrating the significance of this group in the Canadian epidemic. This report briefly describes the drug injection and sexual risk behaviours seen among IDUs in Canada.

Sharing of needles and other injection equipment

The sharing of needles and other injection equipment is considered the main HIV risk behaviour for IDUs and is relatively common:

- A study of IDUs in Vancouver indicated that 40% had borrowed used needles within the last 6 months, and of these, only 22% consistently cleaned these needles with bleach. Also, 45% of all participants reported sharing other injection equipment[2].

- Among IDUs recruited from needle exchange programs (NEPs) in Ottawa and the province of Quebec, 40.1% had borrowed needles in the 6 months prior to the study[3].

- In a study of Montreal NEP attendees in 1996/97, 43.9% had borrowed needles in the 6 months prior to the study[4].

- In Ottawa, 52% of men and 33% of women shared other injection equipment besides needles[5].

Needle exchange programs (NEPs)

NEPs started in Canada in 1989 and have since become widespread[6]. Studies have shown that NEPs attract IDUs at relatively high risk for HIV infection:

- A Montreal study found that frequent NEP attendees have lower income, less social support, and are more likely to attend shooting galleries or inject with a group of people[7].

- In Vancouver, males who were frequent NEP attendees reported higher cocaine use. Females who were frequent NEP attendees injected more frequently, were more likely to have a non-legal source of income, and were more likely to inject at shooting galleries[8].

There is evidence that NEPs prevent HIV infections among IDUs and do not increase the number of IDUs or lower the age of first injection [9,10]. As well, a New York study found a reduced incidence of HIV among NEP attendees[11]. In addition to providing clean needles, NEPs are useful as a way of getting in touch with an otherwise hard to reach

population in order to educate, counsel, and provide referral services to health care and drug treatment.

Sexual risk behaviour of IDUs

Many IDUs in Canada are involved in unprotected commercial sex:

- Among NEP attendees in Ottawa and the province of Quebec, 9.4% of men reported having sex-trade clients, and of these, 63% never or only sometimes used condoms with their clients. Among women, 47.3% had sex-trade clients and of these, 34.6% did not consistently use condoms with clients[3].

- In a Vancouver study 23% of IDUs had been paid for sex in the 6 months prior to the study[2].

Among IDUs with regular and non-regular opposite-sex partners, condom use is also low.

- Among NEP attendees in Ottawa and the province of Quebec, 79.9% of women with regular partners never or only sometimes used condoms; of those with non-regular partners, 65.5% never or only sometimes used condoms. Among men with regular partners, 77.7% never or only sometimes used condoms; of those with non-regular partners, 65.5% never or only sometimes used condoms[3].

- According to a study conducted in Vancouver in 1995, 60% of women and 51% of men who had non-regular sexual partners used condoms more than 75% of the time[8].

Same sex partners among male IDUs

- Among IDUs recruited from NEPs in Quebec and Ottawa, 4.4% of males had a regular male partner and of these, 72.5% never or only sometimes used condoms; 6.8% had non-regular male partners and of these, 75% never or only sometimes used condoms[3].

- Of men who took part in a Vancouver IDU study 22.2% reported having same sex partners within the last 6 months[2].

IDU is a problem among street youth and prisoners

- One-third of a sample of Montreal street youth had injected drugs in the previous 6 months. Among those who were regular injectors, 47% had shared needles in the past 6 months[12].

- 38% of female prisoners in a Quebec prison reported injecting drugs before they were incarcerated, and about half of these had shared needles. 11% of previous IDUs injected drugs while in prison, and most (80%) shared needles[13].

- Among male prisoners in this same study, 26% reported that they had injected drugs before being incarcerated, and about half of these had shared needles; 2% of previous IDUs injected drugs while in prison, and most (92%) shared needles[13].

Comment

High-risk needle sharing and sexual behaviours continue to fuel the HIV epidemic among IDUs in Canada and this group now accounts for about 50% of new infections. Continued monitoring of risk behaviours among IDUs and of factors associated with these behaviours is important, especially with respect to trends over time. This information is needed to help guide the continuing development of prevention programs in this important population group.

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May 1998

Sexual Risk Behaviours of Canadians

Introduction

Sexual behaviour is one of the main determinants of the transmission of HIV in Canada. Therefore, it is important to understand sexual behaviour at the population level to assess the potential for the spread of HIV and to help target and evaluate prevention programs. This report updates information on the sexual behaviour of the general Canadian population and the implications for prevention of HIV infection.

Multiple partners and condom use in the general population: room for improvement

- A recent Canadian survey[1] (1997) indicated that, among adults aged 20 to 45 years, 8.4% of men and 6% of women reported having two or more sexual partners within the previous year. An earlier survey of adults found that 12%-19% of men and 6%-7% of women had had two or more sexual partners in the previous year[2,3].

- Of those who reported sexual intercourse with a non-regular partner in the year prior to a survey in 1994, only 26% of men and 19% of women indicated that they always used condoms with non-regular partners[3]. The remainder either never used condoms or used them inconsistently.

- In the 1997 survey, among men who reported having one or more non-regular partners in the last year, 27.7% did not use a condom the last time they had sexual intercourse with a non-regular partner. Of women who had one or more non-regular partners, 28.1% did not use a condom the last time they had sexual intercourse with a non-regular partner[1].

Adolescent sexual behaviour: An area of concern

- In a school-based survey conducted in Nova Scotia, approximately 61% of grade 12 students reported having sexual intercourse in the year prior to the survey. Of those grade 12 students who were sexually active, only 32% always used condoms, and 40% indicated that they had had two or more partners in the past year[4]. A survey conducted in 1988 suggested that about 50% of 17-year-olds had had sexual intercourse[5].

- A 1992 survey in western Canada found that 55% of 17-year-old boys had had sexual intercourse and of those, 33% had four or more partners; 52% of 17-year-old girls had had sexual intercourse and 30% of this group had four or more partners. Of those who were sexually active, 57% of 17-year-old boys and 45% of 17-year-old girls used a condom the last time they had sexual intercourse[6].

- As the HIV epidemic evolves, more infections are occurring in young people. The Bureau of HIV/AIDS, STD and TB has estimated that, between 1975 and 1984, the median age for HIV infection in Canada was 29.6 years. Between 1985 and 1990, the median age of infection was estimated to be 24.5 years[7].

- Surveillance data on the incidence of other sexually transmitted diseases can also provide a measure of the extent of unprotected sexual behaviour in a population. Preliminary results indicate that over 29,000 cases of chlamydia were reported in Canada in 1996. Among women, girls aged 15-19 have the highest rates of infection for chlamydia and gonorrhea[8].

Groups with higher-risk sexual behaviour

- For men who have sex with men, a national survey in 1991-92 showed that 15% had engaged in unprotected receptive anal intercourse in the past year[9].

- In a Vancouver study of men who have sex with men (age range 18-30 years), 11% reported unprotected receptive anal intercourse with a non-regular partner, and 19% reported unprotected insertive anal intercourse with a non-regular partner in the year prior to the study[10] (for more information, see Epi Update entitled "HIV and AIDS among men who have sex with men", April 1998).

- In a 1997 study of bisexual males in Ontario, it was found that, in the year prior to the study, 50.9% of all respondents reported at least one episode of unprotected sex with a regular female partner, 9.9% with a casual female partner, 12.7% with a regular male partner, and 7.6% with a casual male partner[11].

- In a Vancouver study, 60%-80% of injection drug users study did not always use a condom in the past 6 months when having sexual intercourse with opposite-sex regular partners[12].

- In a study of injection drug users who attended needle exchange programs in Ottawa and the province of Quebec, 63% of men having male sex trade partners reported inconsistent condom use with these clients. Among women, 34.6% of those with sex trade clients did not consistently use condoms with clients[13] (for more information, see Epi Update entitled "Risk Behaviours Among Injection Drug Users in Canada", April 1998).

- A study conducted of STD clinic attendees in Alberta indicated that among women who had a non-regular male partner, only 34.6% always used condoms and 17% never used condoms with non-regular partners. Among men with non-regular female partners, 38% always used condoms and 13.8% never used condoms with these partners[14].

- Recent studies of street youth indicate that 85%-98% [15,16] have had sexual intercourse, with over 60%[16] having had their first sexual intercourse before the age of 13. In addition, 52%-78%[15,16] have had six or more lifetime sexual partners.

Comments

Although most Canadians report having had only one sex partner in the past year, there are many people who report two or more partners. In addition, there is still a significant amount of unprotected sex, especially among adolescents, and this is of particular concern with respect to sex with non-regular partners. This places individuals at potential risk for HIV and other sexually transmitted diseases.

Although a fair amount of information is available on sexual behaviour in Canada, there is limited information on trends in specific behaviours over time. Such trend information is urgently needed to help guide prevention programs and to evaluate their effectiveness in reducing sexual HIV transmission in Canada.

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